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MASTER'S IN BUSINESS MANAGEMENT

CONCEPTS AND MEASURES OF DISTANCE IN INTERNATIONAL BUSINESS: AN EMPIRICAL COMPARISON

Natalia Amarilis García Morales

DIRECTOR

Oscar Martín Martín

Pamplona – Navarre

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1. INTRODUCTION

The concept of distance has been central to International Business (IB) research, in terms of its possible direct impact on international management activities and as a control variable (Ambos and Håkanson, 2013). Analyzing the possible impact of distance, in all its dimensions, may increase the chance of investing in profitable foreign markets (Ghemawat, 2001).

International transactions are determined not only by the costs of overcoming physical distances, such as transportation and tariffs, but also by the costs associated with the collection and interpretation of the information required to effect such transactions (Ambos and Håkanson, 2013). The distance between two countries can be defined in four dimensions: cultural, administrative, geographic, and economic. These dimensions of distance influence different businesses and sectors in different ways (Ghemawat, 2001).

A relevant method to assess foreign market opportunities by distinguishing between the various components of distance is the CAGE distance framework (Cultural, Administrative, Geographic and Economic) (Ghemawat, 2001). Another important framework is the Hofstede's Index which includes several cultural aspects that explains how values in the workplace are influenced by culture (John W. Bing, 2004).

Imports and exports are the defining transactions of international trade and have a significant economic, social, and political importance in many countries. Furthermore, the relationship between distance and IB entry modes choices has been addressed often.

However there is no such a research where distance is related to the selection of countries partners in imports. Consequently the objective of this research is to fill in this gap on the impact that some distance dimensions can have on import flows.

The purpose of this work is to provide empirical evidence about the explanatory power of some measures of distance in the origin of imports. After a systematic literature review on seminal measures of distance, an empirical analysis is carried out aiming to prove a possible correlation between distance and imports origin. Finally this work outlines some implications and directions for future research.

This paper is structured as follows. First a review of the literature regarding to concepts of distance in IB research is presented, providing the theoretical foundation as well as methods and measurements of this topic. Secondly, the methodology is described and the results of the analysis are presented. Finally, is presented findings and discussion of the analysis results.

2. LITERATURE REVIEW

In this section an examination of the most relevant information about conceptualization, measurement and dimensions of distance in the International Business literature is presented.

2.1. Literature review analysis

In order to find useful indicators for this study and make a systematic comparison, revising empirical work, concept of distance, operationalization of distance, main findings and contribution, a summary table of the literature review was prepared.

Most of the relevant studies refer to the concept of distance in IB, Håkanson and Ambos (2013) work on theoretical understanding of distance in International management research, and useful measures development. Berry, Guillén and Zhou (2010), proposed a new approach to conceptualizing, measuring, and examining the influence of cross-national distance.

The common ground of these studies is their theoretical basis, such as the importance of two main concepts of distance, cultural distance and psychic distance. Cultural distance is defined as the country's cultural qualities that make differences in religious beliefs, social norms, etc., which are capable of create distance between two countries (Ghematwat, 2001). All of them agree that the most employed measure in cultural distance is the Kogut and Singh (1988) index, which is based on the cultural value dimensions of Hofstede (1980) (Martín Martín and Drogendijk. 2014). Psychic distance was used in earlier research by Beckerman (1956), later other scholars definied psychic distance as factors preventing the flow of information between the firm and the market (Sousa and Lages, 2010).

A study made by Beckerman (1956), presented the connection between distance and the degree of development of a country, and its possible connection. This paper established that relative distances are not necessarily symmetrical, besides that distance will affect the distribution of exports and imports.

Ghematwat (2001) analyzes the probable impact of distance in International Business activities. This study explains with details and examples the four main dimensions of distance, which are cultural, administrative, geographic and economic.

Also Avloniti and Filippaios (2014) summarize Hofstede's work. Through this model, Hofstede (1980) has "effectively discovered the puzzles of national culture" (Avloniti and Filippaios, p. 662). By focusing on 116,000 surveys of IBM employess, Hofstede (1980) formed its cultural dimensions: Power Distance, Individualism, Masculinity, Uncertainty Avoidance, and Long-Term Orientation.

In the Dow and Karutnaratna (2006) study was develop and tests a range of potential psychic distance stimuli including differences in culture, language, religion, education and political systems. Through the employed methods, stands out the use of GDP per capita as a key variable in this work, because of its importance and relation that has with the economy field in IB this factor will be consider as an indicator for the empirical analysis.

Table 1 a. Summary of the literature review.

Authors	Objective	Methods	Findings	Contribution
Wilfred Beckerman, 1956	Investigate the relationship between the manner in which the trade is distributed and the relative distances between countries.	Data was standardized in order to adjust it to equivalent values. Measured data in terms of geometrical center, economic center of gravity.	Distance will affect the distribution of exports and imports. Relative distances are not necessarily symmetrical.	Causal connection between degree of development and distance. The possible connection between intl. trade and distance.
Pankaj Ghemawat. 2001	Rational approach to evaluate global opportunities. Analyze the probable impact of distance.	CAGE (Cultural, Administrative, Geographic and Economic) distance framework.	Confirm the importance of distinguish between the various component of distance in assessing foreign market opportunities.	This article explains with details and examples the four main dimensions of cultural distance.
Douglas Dow and Amal Karunaratna. 2006	To develop and tests a range of potential psychic distance stimuli including differences in culture, language, religion, education and political systems.	Multiple regression models is developed and calibrated on a set of 627 countries, for which there are published estimates for all five of Hofstede dimensions.	Four psychic distance stimuli variables: are all statically significant in all of the model-sample population combinations tested.	Developing and confirming a set of scales that provide a potential solution to the dilemma of measuring psychic distance
Alvin Tan, Paul Brewer and Peter W. Liesch. 2007	Advances the concept of internationalization readiness and proposes a method for developing an internationalization readiness index.	The development of an IRI requires judgment made on the formative indicators that explain the construct of internationalization readiness.	The internationalization readiness index's usefulness may be undetermined by the temptation to use it as a normative tool for decision making.	The pre-internationalization framework aims to improve traditional stages models by highlighting the point of internationalization readiness that occurs before the commencement of the internationalization process.

Table 1 b. (continued)

Authors	Objective	Methods	Findings	Contribution
Douglas Dow and Jorma Larimo. 2009	Observed how the distance construct, substantially increases the ability to predict entry mode	Depend variable: 95% equity to discriminate between wholly owned subsidiary and joint ventures. Independent variables: Cultural distance, Other types of distance.	A broader conceptualization of the underlying factors driving the distance construct substantially increases the ability to predict entry mode.	- Correction in the way the underlying factors of psychic distance are conceptualized. - Distinction between general international experience and culture-specific experience.
Carlos M.P. Sousa and Luis Filipe Lages, 2010	Develop of a new measurement scale to assess psychic distance (The PD scale). The impact of the PD scale on the adaptation of international marketing strategies.	The paper uses data collected by mail questionnaire in a sample survey of 301 export firms. The results were analyzed using structural equation modeling	The results indicate that the dimensions of the PD scale are positively and significantly associated with cultural distance and the adaptation of product, promotion, pricing and distribution strategies to the foreign market	Development of a new scale, the PD scale, and addresses a gap in the literature by testing its impact on the adaptation of the international marketing strategy.
Heather Berry, Mauro F. Guillén and Nan Zhou. 2010	Disaggregate the construct of distance by proposing a set of multidimensional measures.	Calculate dyadic distances using the Mahalanobis method, which is scale-invariant and takes into consideration the variance–covariance matrix.	Identified 9 dimensions of distance: economic, financial, political, administrative, cultural, demographic, knowledge, connectedness and geographic.	Proposed a new approach to conceptualization, measuring, and examining the influence of cross-national distance.
Lars Håkanson and Björn Ambos. 2010	Provide an improved understanding of the antecedents of psychic distance, in order to facilitate the development of more valid and reliable operationalization.	Building on original data in 25 of the world's largest economies, it's investigated potential drivers of perceived psychic distances to foreign countries.	PD should be given a more prominent role when it comes to empirical investigating IB decisions. Findings also suggest that, used in isolation, "cultural distance" is a poor predictor of PD perceptions.	Results show that geographical proximity can significantly facilitate the interpretation and understanding of foreign environment

Table 1 c. (continued)

Authors	Objective	Methods	Findings	Contribution
Lars Håkanson and Björn Ambos. 2013	Advance in theoretical understanding of distance in International management research, and presentation of more useful measures.	Researching into literature review. Articles based on both theoretical arguments and empirical findings.	When possible use more than one distance measure. Aim for a closer link between the research question at hand and the measure employed.	Brief overview of the evolution of the distance.
Anthi Avloniti and Fragkiskos Filippaios. 2014	The diversity between country-scores of Hofstede, Schwartz, GLOBE, Håkanson and Ambos, and Dow and Karunaratna.	The Mantel test, a test used predominantly used in anthropology and genetics.	The matrix correlation provides evidence supporting the high diversity between these measures and their lack of consistent results for the same countries.	Using different measures of CD, pPD & PDs which then denotes significant implications for the reliability of research findings.
Oscar Martín Martín and Rian Drogendijk. 2014	Propose a multidimensional and objective measure, country distance (COD), as a comprehensive measure of distance between countries.	Market selection by SMEs. Data analysis technique. The data were analyzed using PLS.	Differences in level of education, economic development and political systems are reflected in a dimension label SED.	The development of a multidimensional index of objective that can support decision-makers with various international decisions.
Rian Drogendijk and Oscar Martín Martín. 2014	Investigation about how distance and different dimensions of distance between countries explain the outward FDI of firms according to distinct home country contexts.	Empirically explore whether some dimensions receive different weights when explaining the location of FDI depending on its origin.	Three dimensions of distance explain the direction of Spanish investments, whereas only cultural and historical distance significantly explains Chinese outward FDI.	This research advances the understanding of distance between countries, the dimensions of distance, and how context influences the impact of the dimensions of distance.

Table 1a. – 1c. gives summary information on literature and articles of International Business, concepts and measures of distance, and how these are related or how some factors influence in trading activities. The table includes name of the authors, objective of the study, methods, findings and contributions.

2.2. Concepts of distance

The most well-known concepts for capturing variation between the comparable countries and the home country are the concepts of cultural and psychic distance (Avloniti and Fillippaios, 2013).

The Kogut and Singh (1988) index is one of the most employed measure of cultural distance. Bruce Kogut and Harbir Singh developed a Cultural Distance index (CD) which is based on Hofstede's 4 dimensions (1980). A country's cultural qualities determine "how people interact with one another and with companies and institutions" (Ghemawat, 2001, p. 3). The differences found in religious beliefs, social norms, race, politics, economic development, even language are capable of create distance between two countries (Ghemawat, 2001).

Psychic distance is the second type of distance most used for country differences theories in IB literature. This concept was first introduced by Beckerman (1956) in the research on international trade and it is defined as "factors preventing or disturbing the flow of information between firms and markets" (Johanson and Wiedersheim-Paul 1975, p. 308). The psychic distance perception offers a better basis for the IB studies about country distance, because captures a range of differences between countries more comprehensively (Drogendijk and Martín Martín, 2014). The factors mention in the Johanson and Wiedersheim-Paul study, were assumed to increase managers' uncertainty and misinterpretation of the information, thereby affecting the internationalization decisions made in firms (Johanson and Vahlne, 1977).

Other types of distances are administrative, geographic and economic distance. According to CAGE framework, the administrative or political distance, in which historical and political associations shared by countries affect trade between them; policies of individual governments represents the most common barrier to cross-national business (Ghemawat, 2001). For example, according to Pankaj Ghemawat, colony-colonizer links between countries, such as Spain's continuing ties with Latin America countries, can boost trade by 900% (Ghemawat,

[2001](#)). Another example is the integration of the European Union to deliberately diminish administrative and political distance among trading partners ([Ghemawat, 2001](#)).

The geographic distance is used as an important decision making factor for IB, because the further you are from a country, the harder will be to conduct business in this country.

And finally there is the economic distance, which is the wealth of consumers that creates distance between countries and it has an important effect on the levels of trade and types of partners a country trades with ([Ghemawat, 2001](#)). Most of the cross-border economic activity tends to be typically with rich countries, as the positive correlation between per capita GDP and trade flows implies.

Other concepts of distance that can be found related with the economic factor are financial distance, political distance, administrative distance, cultural distance, demographic distance, knowledge distance, connectedness distance, and geographic distance ([Berry, Guillén & Zhou, 2010](#)). According to the literature, specifically in [Berry, Guillén & Zhou's](#) (2010) article, these types of distance can be defined as follow:

- Economic distance: differences in economic development and macroeconomic characteristics.
- Financial distance: differences in the financial sector development.
- Political distance: differences in political stability, democracy and trade bloc membership.
- Administrative distance: colonial ties, language, religion and legal system.
- Cultural distance: differences in attitudes toward authority, trust, individuality and importance to work and family.
- Demographic distance: differences in demographic characteristics.
- Knowledge distance: differences in patent and scientific production.
- Connectedness distance: differences in tourism and internet use.
- Geographic distance: is the great circle distance between geographic center of countries

2.3. Theoretical approach of distance

In this section will be displayed information about concepts of distance and the most well-known measures of it, such as Hofstede's index and CAGE distance framework.

The Hofstede's cultural dimension theory is a framework for cross-cultural communication, which describes de effects of culture in the value of the society, and how these values could influence to their behavior in the IB. By focusing on 116,000 surveys of IBM employees, Hofstede formed his cultural dimensions; Power Distance, Individualism, Masculinity, Uncertainty Avoidance, Indulgence and finally Long-Term Orientation which was added later (Avloniti and Filippaios, 2014). In addition, Hofstede's cultural distance indicators are set of for a large sample of countries (Berry, Guillén & Zhou, 2010, p. 1461).

The other study of distance is the Pankaj Ghemawat's CAGE framework. The cultural, administrative, geographic and economic (CAGE) distance framework helps managers identify and measure the impact of distance on various industries (Pankaj Ghemawat, 2001). This is one of the most complete studies of cross-national distance is CAGE framework; this paper gives a different point of view for IB strategies, it helps to see the effects of international distance on business by focusing on multidimensional factors. However this theory does not show the actual complexities of distance, because do not consider several aspects, such as finance, politics, demography, knowledge, etc., also this framework does not explain how to measure each dimension separately (Berry, Guillén & Zhou, 2010).

Previous studies tended to be one-dimensional and time-invariant, until Hofstede's index and CAGE framework, whose measures of distance were very diverse, hence the contribution made by these scholars on the cross-national distance field are highly value on many researches.

Although there is an extensive literature that could be found about distance in IB, usually it specializes in how distance and its measures affect firm's International Business decisions. These studies do not make a proven example on how it can affect imports, or the impact it could have in other business relationships, thus this investigations aims to found an empirical explanation on how some distance measures someway influences imports.

2.4. Connection between trade and distance

Import is a good or service brought into one country from another, an import in the receiving country is an export from the sending country. The level of imports also gives an idea of the purchasing power of the importer and its dependence on foreign goods and services. Along with exports, imports are a significant part of the international trade; thus higher the value of

imports entering a country, compared to the value of exports, the more negative that country's balance of trade becomes.

Geographic distance has an effect on trade, foreign investment and other types of economic activity taking place between countries (Anderson, 1979; Deadorff, 1998). This type of distance increases the costs of transportation and communication (Berry, Guillén and Zhou, 2010). This type of distance accounts for almost twice as much total variance explained as all the other psychic distance stimuli combined (Dow and Karunaratna, 2006).

As stated by Beckerman (1956) in his study about distance and the pattern of intra-European trade, there is a strong correlation between distance and trade, and this correlation appears to be equal for imports and exports. Since country's exports are some other country's imports, and vice versa, relative distances will affect both the distribution of exports and imports (Beckerman, 1956). Relative distances are not necessarily symmetrical; the final pattern of trade will be the movements of export against the movements of import (Beckerman, 1956).

In addition, according to Dow and Karunaratna (2006) in their study of developing a multidimensional instrument to measure psychic distance stimuli, and through Pearson's correlations, they determined that the language factor and the colonial ties variable, and the geographic distance and free trade agreement variables, are highly correlated.

When measuring the impact of distance economists often rely on the so-called gravity theory of trade flows, which says there is a positive relationship between economic size and trade and a negative relationship between distance and trade. Models based on this theory explain up to two-thirds of the observed variations in trade flows between pairs of countries. Using such model, economists J. Frankel and A. Rose have predicted how much certain distance variables will affect trade.

So as matter of distance and its relation with trade the GDP variable controls for the size of exporting and importing countries, and the distance variable acts as a surrogate for transportation costs (Dow and Karunaratna, 2006). In contrast, the analysis conducted in Martín Martín and Drogendijk (2014) study, the country level study that the Country Distance (COD) between a home and host countries decreases trade flows.

3. METHODOLOGY

This section of this master's thesis work contains how the investigation will be conducted, as well as the procedure, analysis on imports and other indicators, and the baseline or root of the study.

3.1. Country baseline

From a list of around 200 countries to build the database, one country has to be chosen as the home country, with the purpose of making a reliable empirical comparison. Therefore, for several reasons, and after investigating some world economy rankings from various sources, Spain is set as the baseline country this paper. Spain is the fourteenth (14th) world economy[a], and the sixth (6th) European economy, based on its GDP and according to the 2015 ranking of the World Bank. Can be mention that the reason Spain is considered the home country, is that has an outstanding influence in some countries around the world, because of some historical links it may share with some nations, like countries in South and North America.

It is also notable that in 2014 Spain imported $342B, making it the 16th largest importer in the world. During the last five years the imports of Spain[b] have increased at an annualized rate of 3.8%. The most recent imports are led by Crude Petroleum which represents 11.9% of the total imports of Spain, followed by cars, which account for 4.28%. As well Spain is the 16th largest exporter in the world, having exported $299B in 2014.

Later in the analysis of the study out of 204 countries listed initially in the database just 83 of them will be considered in the regression analysis, because 122 countries have missing values or wrong data

3.2. Indicators

The following indicators were chosen for this thesis work to study if there is evidence about the explanatory power of some measures of distance in imports, through an empirical analysis of these measures. Thus were sort different types of indicators of diverse areas, such as trade

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[a] To see the complete Gross Domestic Product world economy list of 2015 and for reference information about the world economy visit http://data.worldbank.org/data-catalog/GDP-ranking-table

[b] To see the complete a tree map of Spain's imports of 2014 go to Appendix II, or visit http://atlas.media.mit.edu/en/visualize/tree_map/hs92/import/esp/all/show/2014/

factors, cultural studies for IB, etc.; in order to have various points of view of distance measures, also looking forward to, somehow, link measures of imports with distance measures in IB.

Below is shown a resume table with the indicators, their data sources and its labels.

Table 2 indicators, data sources and labels

Indicator	Source	Label
Imports (Camaras):		*IMP*
Weight		Weight
Import value	CAMARAS (web page)	Value
Number of operations		N.OP
Economy:	The World Bank (web page)	*ECO*
GDP per capita (current US$).		GDP
Trade:	The World Bank (web page)	*TRD*
Exports of goods and services (% of GDP).		EXP
National Cultural Distance:		*NAC*
Power distance index		PDI
Individualism	Geert Hofstede (web page)	IDV
Masculinity		MAS
Uncertainty avoidance		UAI
CAGE framework:	Pankaj Ghemawat (web page)	*CAGE*
Geographic distance (Km)		GEOD

In other words, for this study are included various indicators in order to, as mention above, analyze and examine the possible effect that some measures of distance can have in IB. The indicators that will be used for this thesis work are presented as follow.

3.2.1. Imports

An import is a good or service brought into one country from another. The higher the value of imports entering a country, compared to the value of exports, the more negative that country's balance of trade becomes. According to Beckerman (1956), and as mention in section 2.3., since country's exports are some other country's imports, and vice versa, relative distances will affect both the distribution of exports and imports.

For this study the imports indicator will be the dependent variable in the comparative analysis, and will be use the factor scores after performing a principal components analysis.

The Imports variables are presented next. The Import data of this indicator was found in the Spanish Chamber of Commerce (CAMARAS) web page. Spain receives imports from over 200 countries in 2015.

- <u>Weight</u>: this indicator's value comes in thousands of kilograms.

- <u>Value</u>: this indicator's value comes in thousands of euros (€).

- <u>Number of operations</u>: this indicator means the number of operations (imports) made on Spain.

3.2.2. Economy

As mention in section 2.3., a measure of the relation between distance and trade, the GDP variable controls for the size of exporting and importing countries, and the distance variable acts as a surrogate for transportation costs.

Now will be shown the variable to be considered within the economy factor:

- <u>GDP per capita (current US$)</u>: the Gross Domestic Product is the sum of gross value added by all resident producers in the economy plus any product taxes and minus any subsidies not included in the value of the products.

3.2.3. Trade

Trade is a basic economic concept involving the buying and selling of goods and services, with compensation paid by a buyer to a seller, or the exchange of goods or services between parties. Distance can influence the way business and international trade work, since country's exports

are some other country's imports, and vice versa, relative distances will affect both the distribution of exports and imports.

The trade variable is presented next. The trade data of this indicator was found in The World Bank web page.

- Export of goods and services (% of GDP): Exports of goods and services represent the value of all goods and other market services provided to the rest of the world.

3.2.4. *Hofstede's four dimensions*

As stated in the literature review section, there are many ways of measuring distance, and Hofstede's index is one of the most recognizable ways. Hofstede's dimensions are on terms of distance to Spain, so with this index could be study if these factors would have an explanatory power in imports.

All the data of this indicator was found in Geert Hofstede's web page.

- Power distance index: This dimension expresses the degree to which the less powerful members of a society accept and expect that power is distributed unequally.

- Individualism vs. Collectivism: individualism can be defined as a preference for a loosely-knit social framework in which individuals are expected to take care of only themselves and their immediate families. Its opposite, collectivism, represents a preference for a tightly-knit framework in society in which individuals can expect their relatives or members of a particular in-group to look after them in exchange for unquestioning loyalty.

- Masculinity vs. Femininity: The Masculinity side of this dimension represents a preference in society for achievement, heroism, assertiveness and material rewards for success. Its opposite, femininity, stands for a preference for cooperation, modesty, caring for the weak and quality of life.

- Uncertainty avoidance index: The Uncertainty Avoidance dimension expresses the degree to which the members of a society feel uncomfortable with uncertainty and ambiguity.

3.2.5. *CAGE framework*

Similar to the Hofstede's index, the cultural, administrative, geographic and economic (CAGE) distance framework helps managers identify and measure the impact of distance on various industries. As this thesis work plans to provide empirical evidence about the explanatory power of some measure of distance, this indicator helps to establish different types of distance and then compare it to imports. So regarding to this analysis is only used the geographic distance of this framework, in order to avoid repetition or duplicity of factors in the analysis, such as the Cultural Distance (CD) measure of Kogut and Singh's index.

It may also be used to understand patterns of trade, capital, information, and people flows. The CAGE indicator's data was found in Pankaj Ghemawat's web page.

- Geographic distance (Km): Refers to the actual distance between the home country and the others countries, measure in kilometers.

3.3.   Analysis process

To make the corresponding analysis is necessary to build a database, which include a sample of countries and a set of indicators, mention in the above section, in order to perform the analysis and observe if the explanatory power of some measures of distance can provide empirical evidence of imports in IB.

To create the database and analyze its factors, first was established Spain as the home country out an initial sample of 204 countries. After the data were recollected of various sources, was notice that there were a number of missing values of the selected countries, for this reason will not be taken into account those countries with a large set of missing values. A total of 121 countries out of the 204 were not taken into account from the study, having a total of 83 countries to conduct the correspondent analysis.

Then a series of indicators were analyzed, at the end just the indicators that could influence or be related with international trade, distance and imports were the chosen ones to be included in the database, as shown in section 3.2.

For the study the imports indicators will be the dependent variable. After identifying all this factors and once made a database for analysis, is necessary to make a factor analysis, which is a statistical method, in order to describe variability among observed, correlated variables in terms of a potentially lower number of unobserved variables called factors. Thus, this procedure is intended to reduce the complexity in a set of data, in order to create a unique indicator that joins the three variables of the Imports indicator, will be applied a factorial analysis.

After this step follows a descriptive statistics analysis that would help describe and understand the features of the database, by giving short summaries about the sample and measures of the data; later a correlation matrix to measure the degree to which a number of variables move in relation to each other; and following a linear regression analysis to describe data and to explain the relationship between one dependent variable and more independent variables.

3.4. Statistics definitions

In this section will be defined few basic concepts of the statistics field, so as to carry out the following analysis and present finding of the investigation.

- Factor analysis: is an explorative analysis. The factor analysis groups similar variables into dimensions. Since factor analysis is an explorative analysis it does not distinguish between independent and dependent variables.
  Factor Analysis reduces the information in a model by reducing the dimensions of the observations. Then the correlation coefficient between two factors is zero, which eliminates problems of multicollinearity in regression analysis.

- Correlation: correlation is a statistical technique that shows how strongly two variables are related to each other or the degree of association between the two. There are different degrees of correlation, perfect correlation, when both the variables change in the same ratio; high degree of correlation, when the correlation coefficient range is above .75; moderate correlation, when the correlation coefficient range is between .50 to .75; low degree of correlation, when the correlation coefficient range is between .25 to .50; and absence of correlation, when the correlation coefficient is between .0 to .25.

- <u>Multicollinearity</u>: is a state of very high correlations. Is a type of disturbance in the data, and if present in the data the statistical inferences made about the data may not be reliable. If the correlation exceeds .8 there is multicollinearity.

- <u>Regression analysis</u>: is a statistical process for estimating the relationships among variables. It includes many techniques for modeling and analyzing several variables, when the focus is on the relationship between a dependent variable and more independent variables. More specifically, regression analysis helps one understand how the typical value of the dependent variable changes when any one of the independent variables is varied, while the other independent variables are held fixed.

References regarding to this statistics concepts were found in <u>Freund and Williams (1966)</u> book, about basic statistics. They established that a wide glossary of terms with its definitions of statistics for the basic understanding.

4. EMPIRICAL ANALYSIS AND FINDINGS

To begin with the analysis was necessary to have a basic understanding of statistics (presented in the previous section), in order to through this analysis understand the data and make the corresponding conclusions. The statistics software SPSS statistics was used to carry out the study. In Appendix II is show the database used in the software to make the analysis, which includes the indicators presented in section 3.2, and information about 204 countries.

In the following subsections is presented the results of the investigation.

4.1. Factor analysis, imports measurement.

The first step was to conduct a factor analysis of the Imports indicators: which are Weight, Value and No. of Operations. The results are the following:

Table 3. Correlations

		Weight	Value	N.Op
Weight	Pearson Correlation	1	.668**	.473**
	Sig. (2-tailed)		.000	.000
	N	197	197	197
Value	Pearson Correlation	.668**	1	.925**
	Sig. (2-tailed)	.000		.000
	N	197	197	197
N.Op	Pearson Correlation	.473**	.925**	1
	Sig. (2-tailed)	.000	.000	
	N	197	197	197

**. Correlation is significant at the 0.01 level (2-tailed).

There is a moderate correlation between weight and value, with a significance of 0.000; moreover weight and no. of operations have a low degree of correlation. This means that these indicators have a good correlation, so the new factor developed for the study, which is Imports variable, is accurate.

Table 4. Total Variance Explained

Component	Initial Eigenvalues			Extraction sums of squared loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	2.395	79.819	79.819	2.395	79.819	79.819
2	.562	18.726	98.545			
3	.044	1.455	100.000			

Extraction Method: Principal Component Analysis

In the Total initial eigenvalues shows that component 1 (weight) has a greater value than one, and the other two components less than 1, this means that should not keep with the eigenvalues less than one. The extraction sums of square loadings indicate that should be kept just one component. In other words, those three variables were reduced into one component.

With this factor analysis is outline a new factor score to proceed with the study, this factor will be consider the dependent variable, and will be named in the database as "REGR factor score IMP indicators" (IMP.FAC1_1)

4.2. Descriptive statistics. Frequencies

The next step was to develop descriptive statistics, using the frequencies to describe how many countries have valid data in the database, with the purpose of reduce the number of countries that would be compared with Spain. The SPSS statistics presented the following information:

Table 5. Statistics

		Weight	Value	N.Op	PDIspain	IDVspain	MASspain	UAIspain	CD	GDP	EXP	GEOD	REGR factor score IMP indicators
N	Valid	197	197	197	102	102	102	102	102	170	141	197	197
	Missing	17	17	17	112	112	112	112	112	44	73	17	17

For this study the most relevant indicator is the new created Imports indicator, so will be important to carry out a study with a minimum number of 197 countries. However other indicators have a greater number of missing values or wrong data, so this number of countries is reduce to 83 countries, in order to get trustful results for the following analysis.

4.3. Regression analysis.

The last step is to conduct a regression analysis to estimate the relationships among variables. A regression analysis will be made including Hofstede's 4 dimensions and other factors as Geographic distance (from CAGE framework), GDP per capita, Exports, and the Imports indicator (REGR factor score IMP indicators).

4.3.1. *Regression including Hofstede's four dimensions*

This analysis uses the all four Hofstede's dimension, which are on terms of distance to Spain, to see if each individual dimension has a greater effect on imports.

Table 6. Descriptive Statistics

	Mean	Std. deviation	N
REGR factor score IMP indicators	.3629511	1.41724924	83
GDP	18917.61	21380.257	83
EXP	45.10	37.038	83
GEOD	5524.75	3864.348	83
PDIspain	1.14	1.250	83
IDVspain	1.29	1.011	83
MASspain	1.10	1.835	83
UAIspain	2.14	2.584	83

This descriptive box shows the mean of each variable, the standard deviation and the number of countries in this analysis of a selection of 83 countries. Then a correlation matrix is presented to see how strongly the dependent and independent variables are related to each other or the degree of association between them. And the last table is the coefficients, where is displayed the collinearity statistics and the significance value.

Table 7. Correlations

		REGR factor score IMP indicators	GDP	EXP	GEOD	PDIspain	IDVspain	MASspain	UAIspain
Pearson Correlation	REGR factor score IMP indicators	1.000	.213	-.097	-.203	-.078	.037	.045	-.045
	GDP	.213	1.000	.498	-.260	.060	-.169	.213	.154
	EXP	-.097	.498	1.000	-.116	.053	-.208	.064	.306
	GEOD	-.203	-.260	-.116	1.000	-.069	.423	-.139	.290
	PDIspain	-.078	.060	.053	-.069	1.000	-.122	.346	.080
	IDVspain	.037	-.169	-.208	.423	-.122	1.000	-.242	.063
	MASspain	.045	.213	.064	-.139	.346	-.242	1.000	.066
	UAIspain	-.045	.154	.306	.290	.080	.063	.066	1.000
Sig. (unilateral)	REGR factor score IMP indicators	.	.027	.191	.033	.241	.368	.345	.345
	GDP	.027	.	.000	.009	.294	.064	.026	.082
	EXP	.191	.000	.	.149	.318	.029	.284	.002
	GEOD	.033	.009	.149	.	.269	.000	.106	.004
	PDIspain	.241	.294	.318	.269	.	.135	.001	.237
	IDVspain	.368	.064	.029	.000	.135	.	.014	.287
	MASspain	.345	.026	.284	.106	.001	.014	.	.278
	UAIspain	.345	.082	.002	.004	.237	.287	.278	.
N	REGR factor score IMP indicators	83	83	83	83	83	83	83	83
	GDP	83	83	83	83	83	83	83	83
	EXP	83	83	83	83	83	83	83	83
	GEOD	83	83	83	83	83	83	83	83
	PDIspain	83	83	83	83	83	83	83	83
	IDVspain	83	83	83	83	83	83	83	83
	MASspain	83	83	83	83	83	83	83	83
	UAIspain	83	83	83	83	83	83	83	83

Although was taken into account Hofstede's four dimension, and was expected that this change somehow could create more relation between these variables, is shown in the

correlation matrix that the most relevant correlation are between the Imports variable and the GDP per capita and the Geographic Distance, which indicates a correlation of 0.213 and -0.203 respectively, so these are the main variables that have an explanatory power on Imports.

Table 8. Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	Correlations			Collinearity statistics	
		B	Std. Error	Beta			Zero order	Partial	Semipartial	Tolerance	VIF
1	(Constant)	.717	.425		1.688	.096					
	GDP	1.955E-005	.000	.295	2.274	.026	.213	.254	.243	.678	1.474
	EXP	-.010	.005	-.258	-1.971	.052	-.097	-.222	-.211	.668	1.496
	GEOD	-8.250E-005	.000	-.225	-1.753	.084	-.203	-.198	-.187	.693	1.444
	PDIspain	-.109	.130	-.096	-.842	.402	-.078	-.097	-.090	.873	1.146
	IDVspain	.168	.172	.120	.978	.331	.037	.112	.104	.760	1.316
	MASspain	.020	.092	.026	.216	.829	.045	.025	.023	.803	1.245
	UAIspain	.029	.066	.052	.434	.665	-.045	.050	.046	.783	1.277

a. Dependent variable: REGR factor score IMP indicators

Two collinearity diagnostic factors that help to identify multicollinearity in the study are the tolerance and the Variance Inflation Factor (VIF). A smaller tolerance value indicates that a predictor is redundant, and values that are less than .10 may merit further investigation. Values of VIF that exceed 10 are often regarded as indicating multicollinearity. In this case there is no multicollinearity in the study.

Now looking at the p-value (sig.) and the t-value for each predictor, can be see that the GDP and the GEOD scales contributes to the model, however Hofstede's indicators and EXP does not.

The effect of geographic distance (p=0.033) is significant and its correlation is negative indicating that the greater the geographic distance between countries, the lower the imports.

Even though the effect of GDP per capita (p=0.020) is significant, it has a positive correlation, indicating that the greater the GDP per capita the better the imports.

In conclusion, whether using the Hofstede's four dimensions, the results shows the same deduction, that just two of the predictors have an explanatory power on imports.

In the next section will be discuss the results of the study along with the literature review, in order to see some implications of the study.

5. DISCUSSION AND IMPLICATIONS

The relation between the analysis made through the SPSS software and the findings and contribution made in the literature review will give an empirical comparison whether there is or not significant and explanatory power of distance that influence import relations.

To conclude this study will be presented below the most relevant aspects observed in the database analysis, such as the relation between geographic distance and imports.

Dow and Karunaratna (2006) determined that through Pearson's correlations the language factor and the geographic distance and free trade agreement variables are highly correlated. This means there is a relevant relation between GDP per capita and Geographic distance.

Through a regression analysis, was tested Dow and Karunaratna's assumption, these results showed the significance and correlation between the indicators of GEOD and GDP, explaining that the greater the geographic distance between countries, the lower the imports, and the greater the GDP per capita the better the imports.

Using the theory and the literature review can be conclude that this types of correlation happens because, first the GDP variable controls for the size of the exporting and importing countries, and the distance variable acts as a surrogate for transportation costs (Dow and Karunaratna, 2006). Secondly, is established the farther you are from a country, the harder it will be to conduct business in that country (Ghematwat, 2001), also geographic attributes influence the costs of transportation. Products with low value-to-weight, such as steel and cement, incur particularly high costs as geographic distance increases (Ghematwat, 2001).

Summarizing, geographic distance has a negative correlation and significant effect in imports suggesting that the greater the geographic distance between countries, the lower the imports. This is caused basically because of physic distance and the costs of transportation to deliver a product (Dow and Karunaratna, 2006). For the GDP per capita, is considered an economic factor, and has a positive correlation and significant effect in imports as well, indicating that the greater the GDP per capita the better the imports. The reason GDP has an effect in trade is because of the influence of consumer purchasing power their income level (GDP per

capita), this prevails inflation rates, and intensity of trade with the rest of the world (exports plus imports as a proportion of GDP) (Berry, Guillén and Zhou, 2010).

As mention in section 4.3.1, Hosftede's four dimensions index have no significant effect to the dependent variable, thus there is no strong correlation between these factors. Thus there is no strong relation between imports and cultural distance.

The reason of this result is because these indicators affect more on the entry modes than international trade. Hofstede (1980) hypothesize that the more distant, in its dimensions terms, the country of investing is, the more likely the choice to set up a joint venture, this confirms that the Hofstede's index variable are used more to prove entry modes connection than international trade relationships, such as Kogut and Singh (1988) used it in their study.

6. CONCLUSION

Although there is an extensive literature that could be found about distance in IB, usually it specializes in how distance and its measures affect firm's International Business decisions. These studies do not investigate how IB can affect imports, thus this investigations aims to found an empirical explanation on how some distance measures could influences imports.

Beckerman (1956) presented the connection between distance and the degree of development of a country, and its possible connection. This paper established that relative distances are not necessarily symmetrical, besides that distance will affect the distribution of exports and imports.

According to scholars outline that on the so-called gravity theory of trade flows, there is a positive relationship between economic size and trade and a negative relationship between distance and trade. Models based on this theory explain up to two-thirds of the observed variations in trade flows between pairs of countries.

In conclusion in this thesis work was found the explanatory power of some measure of distance, such as Geographic distance or some Economic factor, in imports through a regression analysis that outlined the correlation between the GDP per capita and GEOD predictors and the dependent variable, resulting that the greater Geographical distance lower Imports, and the higher is the GDP per capita of a country greater likelihood that imports from that country get to Spain, this occurs because of the costs of transportation to deliver a product.

In addition, other measures of distance, for example Hofstede's four dimensions have no significant effect on trade relations between countries. In the literature review there are no relevant studies that compare these variables in a statistical analysis, because according to the regression analysis made, there is no great correlation or significance between these factors and imports.

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8. APPENDIX

8.1. Appendix I. Tree map of Spain's Imports of 2014.
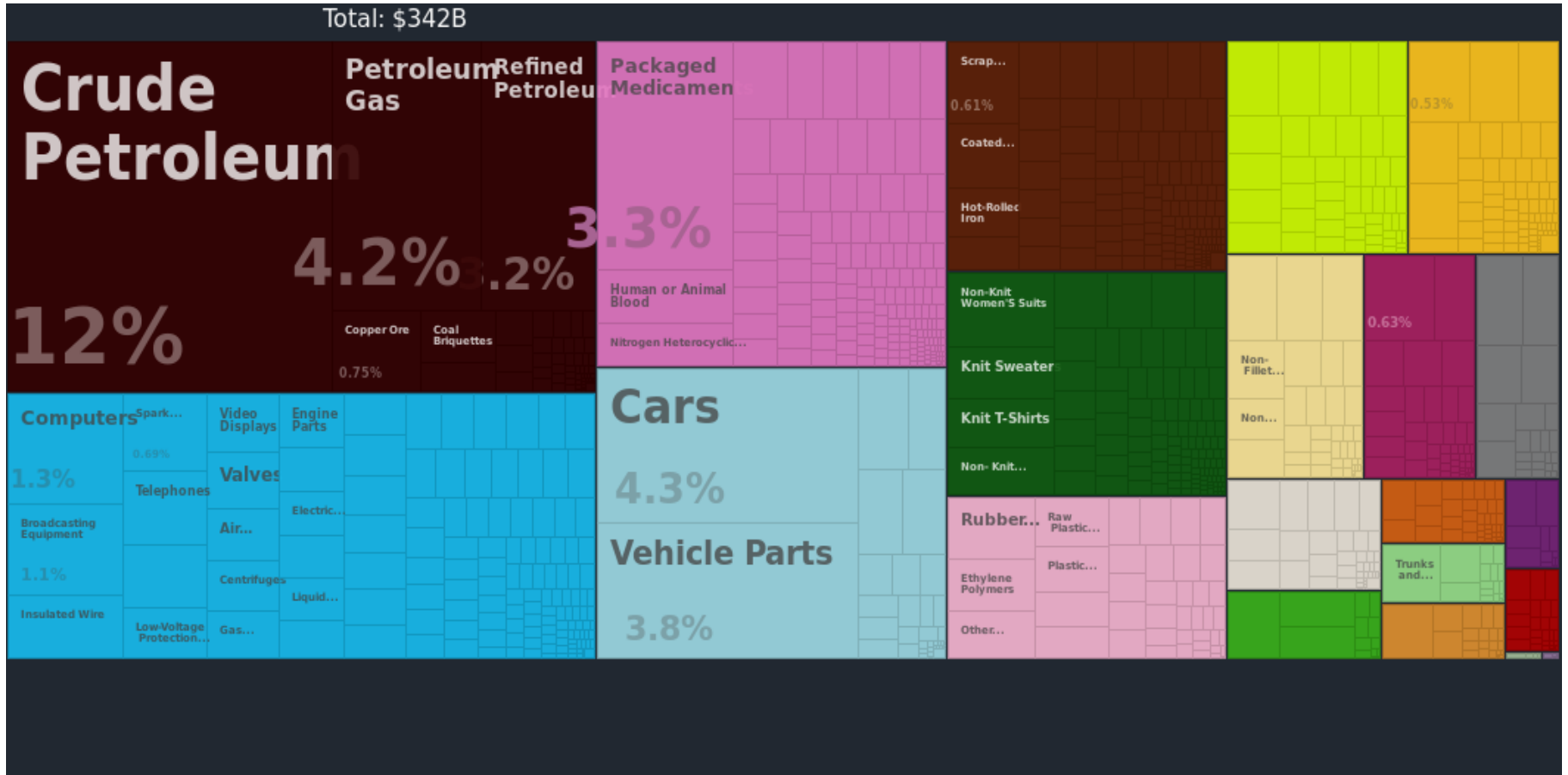
8.2. Appendix II. Database for the study.

COUNTRY	WEIGHT (thousands of Kg.)	VALUE (thousands of euros)	N.OP	PDI (Iij - Iiu)²/V	IDV (Iij - Iiu)²/Vi	MAS (Iij - Iiu)²/Vi	UAI (Iij - Iiu)²/Vi	CD	GDP	EXP	GEOD (km)
Afghanistan	233289	1265803	83						590.27	7.33	6290.0
Albania	2.87E+08	94260083	3362	2.48	1.99	4.06	0.54	2.27	3965.02	27.10	1977.0
Algeria	1.91E+10	6.49E+09	1869						4206.03		707.0
Andorra	51534498	20873307	6517								494.0
Angola	5.96E+09	2.03E+09	793	1.54	2.25	1.36	1.43	1.65	4102.12	37.31	5752.0
Antigua and Barbuda	765715	2910395	67						14128.88	43.99	6111.0
Argentina	2.2E+09	1.38E+09	14178	0.15	0.05	0.55	0.00	0.19			10066.0
Armenia	34404060	37391967	116						3499.80	29.73	4040.0
Aruba	12596	328033.3	21								7112.0
Australia	1.5E+09	4.95E+08	15286	1.00	3.15	1.01	2.58	1.94	56327.72	19.79	17699.0
Austria	6.86E+08	1.98E+09	159182	4.82	0.03	3.85	0.54	2.31	43438.86	53.37	1812.0
Azerbaijan	1.06E+09	4.24E+08	89						5496.34	37.81	4471.0
Bahamas, The	13132987	1294135	235						22896.92	43.14	4472.0
Bahrain	38617708	67112277	607						23395.75		5210.0
Bangladesh	1.64E+08	1.98E+09	258983	1.21	1.99	0.47	1.43	1.27	1211.70	17.34	8661.0
Barbados	1256663	1917719	55						15660.68	36.89	6206.0
Belarus	89453218	32670578	1073						5740.46	60.07	2763.0
Belgium	4.06E+09	7.07E+09	687979	0.15	1.19	0.40	0.14	0.47	40231.28	84.41	1317.0
Belize	10559978	11065925	1470						4906.94		8378.0
Benin	1802173	2926294	55						779.07	26.88	3837.0
Bhutan	118236	1187965	133	3.12	0.00	0.28	7.10	2.62	2532.45	44.48	8347.0
Bolivia	56726770	80496536	1073						3095.3597		9181.0
Bosnia and Herzegovina	25147576	34482694	4757						4197.81		1862.0
Botswana	9011	96562.49	41						6360.64	49.70	7875.0

Brazil	1.02E+10	3.14E+09	39215	0.33	0.35	0.14	0.21	0.26	8538.59	13.04	8390.0
Brunei	7653	31862.57	28						36607.93		12016.0
Bulgaria	1.35E+09	5.16E+08	43714	0.38	0.91	0.01	0.00	0.33	6819.87	66.46	2255.0
Burkina Faso	11633424	6701024	131	0.38	2.68	0.18	2.03	1.32	613.04	33.42	3132.0
Burma											
Burundi	52529	200300.3	6						275.98	7.10	5920.0
Cambodia	35106180	4.21E+08	84020						1158.69	67.62	10708.0
Cameroon	5.68E+08	2.89E+08	1476						1250.78	16.96	4347.0
Canada	3.05E+09	9.88E+08	51855	0.74	1.74	0.28	3.05	1.45	43248.53	31.54	6040.0
Cabo Verde	20875.4	40999.42	682	0.74	1.99	2.05	4.46	2.31	3131.13		3418.0
Central African Republic	712114	423908.5	44						306.78	9.19	4592.0
Chad	199798	265843.8	8						775.70	29.83	3638.0
Chile	1.14E+09	1.5E+09	14479	0.08	1.62	0.55	0.00	0.56	13383.88	30.05	10715.0
China	5.52E+09	2.36E+10	3658990	1.21	1.99	1.62	6.62	2.86	7924.65	22.37	9232.0
Colombia	9.85E+09	1.61E+09	19082	0.23	2.99	1.36	0.08	1.16	6056.15	14.71	8107.0
Comoros	24968	223456.3	17								7527.0
Congo, Dem. Rep. of	15474305	62264651	201						456.05	29.49	5321.0
Congo, Republic of the	4.52E+08	2.1E+08	171						1851.20	69.28	5314.0
Costa Rica	2.31E+08	1.8E+08	7232	1.10	2.68	1.24	0.00	1.26	10629.84		8484.0
Cote d'Ivoire	2.28E+08	2.9E+08	2466						1398.69	45.40	3907.0
Croatia	70531799	95114465	8699	0.58	0.67	0.01	0.08	0.34	11535.83	49.38	1702.0
Cuba	1.22E+08	1.25E+08	8602								7450.0
Curaçao	16320118	18803973	255								7054.0
Cyprus	4883355	17127391	2269						22957.40		3288.0
Czech Republic	6.69E+08	3.65E+09	205937	0.00	0.10	0.63	0.30	0.26	17231.28	84.49	1776.0
Denmark	8.24E+08	1.64E+09	176040	3.46	1.10	1.90	8.37	3.71	52002.15	53.27	2075.0
Djibouti											5586.0

Dominica	14822	322732.2	19						7399.25	34.16	6197.0
Dominican Republic	29448275	1.03E+08	6021	0.15	0.91	1.49	3.55	1.52	6373.55	24.64	6688.0
Ecuador	1.28E+08	4.81E+08	19116	1.00	3.83	1.24	0.76	1.71	6248.11	21.07	8751.0
Egypt	8.19E+08	4.97E+08	28685	0.38	1.40	0.03	0.08	0.47	3614.75	13.21	3356.0
El Salvador	18257545	38847226	1882	0.18	2.12	0.01	0.14	0.61	4219.35	25.96	8656.0
Equatorial Guinea	1.59E+09	5.69E+08	303						11120.86	98.02	4250.0
Eritrea											4965.0
Estonia	2.52E+08	1.18E+08	6547	0.66	0.17	0.40	1.43	0.66	17295.36	79.76	2895.0
Ethiopia	1.19E+08	46766252	454	0.38	1.99	1.49	2.03	1.47	619.14	9.83	5455.0
Fiji	1475791	1925998	135	1.00	2.83	0.04	3.05	1.73	4916.25	64.17	17526.0
Finland	1.05E+09	1.04E+09	36399	1.31	0.30	0.72	1.54	0.97	41920.80	37.30	2952.0
France	2.01E+10	2.98E+10	1987714	0.28	0.83	0.00	0.00	0.28	36248.18	29.99	1055.0
Gabon	1.28E+09	4.1E+08	266						8311.48	45.88	4650.0
Gambia, The	413083	1859633	119								3242.0
Georgia	52568866	45381996	1105						3795.97	45.04	4020.0
Germany	8.97E+09	3.59E+10	2711007	1.10	0.53	1.62	0.93	1.05	41219.05	46.92	1479.0
Ghana	42893058	95418383	1035	1.21	2.68	0.01	0.93	1.21	1381.41	44.06	3896.0
Greece	4.72E+08	5.77E+08	21780	0.02	0.53	0.63	1.43	0.65	18035.55	30.11	2373.0
Grenada	15	753.05	3						9156.55	28.21	6456.0
Guatemala	74889559	89134115	2379	3.29	4.19	0.07	0.36	1.98	3903.49	21.29	8701.0
Guinea	3.81E+09	1.6E+08	172						531.32	26.81	3638.0
Guinea-Bissau	148705	158052	11						573.03		3386.0
Guyana	15780209	5893211	16						4127.35	45.70	6560.0
Haiti	1383025	4715046	109						828.81	19.85	6901.0
Holy See (Vatican)	1194	10665.2	9								1364.0
Honduras	21253737	43987417	2047	1.21	1.99	0.01	2.73	1.49	2495.59	45.08	8464.0
Hong Kong	26442092	2.49E+08	87182	0.28	1.40	0.63	6.85	2.29	42422.87	201.16	10551.0
Hungary	4.1E+08	2.62E+09	125790	0.28	1.74	5.94	0.03	2.00	12259.12		1978.0

Iceland	38340.76	112899.5	2110	1.66	0.17	2.88	2.73	1.86	50173.34	53.74	2895.0
India	1.09E+09	3.1E+09	553720	0.91	0.02	0.55	4.46	1.49	1581.59		7282.0
Indonesia	5.26E+09	1.66E+09	142829	1.00	2.83	0.04	3.05	1.73	3346.49	21.09	12188.0
Iran	2.09E+08	1.76E+08	2085	0.00	0.21	0.00	1.54	0.44			4785.0
Iraq	3.91E+09	1.17E+09	91	3.29	0.91	2.20	0.00	1.60	4629.08	28.50	4305.0
Ireland	3.11E+08	3.18E+09	48977	1.92	0.75	1.90	5.49	2.51	51289.73	121.42	1450.0
Israel	6.97E+08	7.23E+08	34128	4.41	0.02	0.07	0.05	1.14	35329.51	31.14	3546.0
Italy	8.03E+09	1.73E+10	1522317	0.11	1.29	2.20	0.26	0.97	29847.05	30.24	1367.0
Jamaica	392626	424953.6	149	0.33	0.30	1.90	11.24	3.44	5137.92	30.13	7318.0
Japan	2.51E+08	3.22E+09	339490	0.02	0.05	7.89	0.08	2.01	32477.22	17.90	10777.0
Jordan	91293021	51022457	916	0.38	0.91	0.03	0.93	0.56	4940.05	37.82	3652.0
Kazakhstan	3.06E+09	1.19E+09	771						10508.40	28.63	6423.0
Kenya	20862095	37352759	1536	0.38	1.40	0.91	2.73	1.36	1376.71	15.77	6197.0
Kiribati									1291.88	11.00	
Korea, Dem. People's Rep.	161843	1448029	303								9825.0
Korea, Republic of	1.02E+09	2.29E+09	225641	0.02	2.25	0.03	0.00	0.58	27221.52	45.90	10013.0
Kosovo	1068630	2302245	34						3553.37	19.09	2082.0
Kuwait	1.11E+08	81411323	502	2.48	1.40	0.01	0.08	0.99	28984.64		4809.0
Kyrgyzstan	288595	413079.8	33						1103.22		6270.0
Laos	809928	8089415	1970						1812.33	34.85	10040.0
Latvia				0.38	0.75	3.06	1.12	1.33	13664.94	58.76	2716.0
Lebanon	57134291	36618719	1025	0.74	0.25	1.49	2.73	1.30	8050.75	56.94	3525.0
Lesotho	109	4089.04	3								8403.0
Liberia	4.84E+08	20456380	250						455.87	23.48	3858.0
Libyan Arab Jamahiriya	1.78E+09	5.98E+08	131	1.21	0.35	0.28	0.68	0.63	4643.31	28.95	1726.0
Liechtenstein	1310835	22796693	1226								1298.0
Lithuania	7.46E+08	3.17E+08	16120	0.51	0.17	1.49	0.93	0.77	14172.22	77.29	2666.0

Luxembourg	3.13E+08	4.28E+08	16772	0.66	0.17	0.18	0.54	0.39	101449.97	213.85	1281.0
Macau	116695	3758587	277						78585.88	77.79	10516.0
Macedonia	17312209	82584151	6067						4852.66	48.53	2108.0
Madagascar	9798183	71463929	8062						411.82	33.18	8461.0
Malawi	10330288	7904178	110	0.38	0.91	0.01	2.73	1.01	381.37	28.11	7187.0
Malaysia	5.66E+08	7.09E+08	63455	5.03	1.29	0.18	5.27	2.94	9766.17	71.00	11085.0
Maldives	431640	3004441	396						7681.08	104.93	8631.0
Mali	1117630	1388782	576						744.35	21.81	3117.0
Malta	48597810	63832121	4760	0.00	0.13	0.07	0.21	0.10			1671.0
Marshall Islands	6744717	199823.2	102								14720.0
Mauritania	41312121	1.79E+08	16455								2741.0
Mauritius	94879350	84616002	9779						9116.83	49.80	9246.0
Mexico	9.15E+09	3.61E+09	74748	1.31	0.91	2.05	0.03	1.08	9009.26	35.34	9074.0
Micronesia	4	517.72	1								14446.0
Moldova	28877371	18434313	1682						1843.24	43.43	2698.0
Monaco											
Mongolia	44728	273170.1	38						3973.44	44.94	8063.0
Montenegro	99560	230734.3	76						6415.03	43.31	1927.0
Morocco	2.22E+09	4.9E+09	303926	0.38	0.05	0.34	0.68	0.37	2871.51		763.0
Mozambique	3.94E+08	1.75E+08	1226	1.79	2.68	0.04	3.72	2.06	525.01	26.16	8288.0
Myanmar	11094221	66873388	4919						1203.51		9621.0
Namibia	82445778	2.06E+08	4204	0.15	0.91	0.01	3.55	1.15	4695.77	43.90	7334.0
Nauru	13951	81105.78	24								15489.0
Nepal	358912	3109606	1782	0.15	0.91	0.01	4.46	1.38	732.30	11.65	7989.0
Netherlands	5.16E+09	1.14E+10	740975	0.82	1.74	2.20	2.30	1.77	44433.41	82.76	1481.0
Netherlands Antilles											
New Zealand	66779667	1.38E+08	6286	2.79	1.62	0.72	2.89	2.01	37807.97		19586.0
Nicaragua	11830584	58384251	1279						2086.90	37.52	8524.0

Country											
Niger	2193769	2919788	98						358.96	17.18	3045.0
Nigeria	1.31E+10	4.62E+09	1428	1.21	0.91	0.91	2.03	1.26	2640.29		3848.0
Norway	3.48E+09	1.74E+09	18365	1.54	0.67	3.25	2.73	2.05	74734.56	37.05	2391.0
Oman	1.74E+08	77643829	493						15645.08		6044.0
Pakistan	1.42E+08	7.8E+08	91080	0.01	2.83	0.18	0.54	0.89	1428.99	10.95	6652.0
Palau	77	3612.47	1						13498.66	62.46	13205.0
Palestinian Territories	2344	28782.67	19								3596.0
Panama	36563474	43641029	1828	3.29	3.31	0.01	0.00	1.65	13268.11		8170.0
Papua New Guinea	1.04E+08	96740303	446								15549.0
Paraguay	3.65E+08	1.5E+08	1214						4160.61	41.86	9194.0
Peru	1.5E+09	1.24E+09	34045	0.11	2.54	0.00	0.00	0.66	6121.86	21.03	9522.0
Philippines	56739897	2.06E+08	19563	3.12	0.75	1.36	3.72	2.24	2899.38	27.94	11665.0
Poland	1.5E+09	4.5E+09	188518	0.28	0.17	1.36	0.10	0.48	12494.47	49.36	2293.0
Portugal	1.08E+10	1.07E+10	820455	0.08	1.19	0.34	0.68	0.57	19222.94	40.34	501.0
Qatar	2.23E+09	7.67E+08	1562						74667.20	55.37	5343.0
Romania	1.43E+09	1.42E+09	82872	2.48	0.91	0.00	0.03	0.86	8972.92	41.09	2477.0
Russian Federation	1.31E+10	3.34E+09	12814	2.95	0.30	0.10	0.17	0.88	9057.11	29.53	3449.0
Rwanda	12678	49299.51	25						697.35	14.43	5829.0
Saint Kitts and Nevis	12034	85834.29	85						16589.09	32.94	6173.0
Saint Lucia	17	25708.55	10						7764.31	45.07	6254.0
Saint Vincent and the Grenadines	13814	69961.43	36						6864.24	25.08	6334.0
Samoa	35221	80219.72	5						3938.55	27.20	16840.0
San Marino	266761	3920586	697								1391.0
Sao Tome and Principe	613293	1628242	39								4562.0
Saudi Arabia	8.45E+09	3.44E+09	12069	3.29	1.40	0.91	0.08	1.42	20481.75	33.75	4976.0
Senegal	1.17E+08	75755106	3925	0.38	1.40	0.03	2.03	0.96	910.79	27.79	3164.0
Serbia	4.18E+08	1.82E+08	13444	1.92	1.40	0.00	0.08	0.85	5143.95	47.69	2035.0

Seychelles	12158751	21118883	256						15476.02		7829.0
Sierra Leone	182248	1606213	158	0.38	1.99	0.01	2.73	1.28	693.41	19.81	3677.0
Singapore	1.1E+08	3.77E+08	28249	0.66	1.99	0.10	12.84	3.90	52888.74	176.49	11400.0
Sint Maarten	116	6974.97	34								6148.0
Slovakia	2.9E+08	1.82E+09	40967	5.03	0.00	12.99	2.58	5.15	15962.57	93.80	1866.0
Slovenia	1.27E+08	3.85E+08	23870	0.45	1.19	1.49	0.01	0.78	20713.07	77.84	1601.0
Solomon Islands	1090762	2412640	36						1982.27	44.99	16215.0
Somalia	92717	1094909	25						551.86	14.46	6518.0
South Africa	1.93E+09	9.86E+08	24609	0.15	0.41	1.24	2.89	1.17	5691.69	30.90	8583.0
South Sudan	113	1591.29	2						730.58	9.78	5288.0
Spain	0	0	0	0.00	0.00	0.00	0.00	0.00	25831.58	33.15	0.0
Sri Lanka	21636038	1.04E+08	35986	1.21	0.53	2.88	3.55	2.04	3926.17	20.53	8976.0
Sudan	571130	1043500	56						2089.40	6.91	4459.0
Suriname	12466163	8891159	76	1.79	0.03	0.07	0.08	0.49	8983.63	40.60	6398.0
Swaziland	46918523	20550792	119						3154.75		8258.0
Sweden	2.06E+09	2.33E+09	200007	1.54	0.83	3.85	6.85	3.27	50272.94	45.20	2597.0
Switzerland	1.07E+08	3.05E+09	159790	1.21	0.60	2.20	1.65	1.41	80214.73	63.49	1153.0
Syrian Arab Republic	3708980	10269940	239	1.21	0.53	0.28	1.43	0.86			3611.0
Taiwan	2.45E+08	1.03E+09	175463	0.00	2.39	0.03	0.61	0.76			10804.0
Tajikistan	1488	31981.62	110						925.91		6048.0
Tanzania, United Rep. of	7619783	23947170	694	0.38	1.40	0.01	2.73	1.13	864.86	20.78	6858.0
Thailand	2.6E+08	9.58E+08	137520	0.11	1.99	0.18	1.02	0.83	5816.44		10194.0
Timor-Leste	110	21796.23	5						1134.43		13902.0
Togo	8578543	5762924	63						547.97	45.82	3845.0
Tonga	22242	47923.77	3								17722.0
Trinidad and Tobago	1.42E+09	4.08E+08	254	0.23	2.54	0.72	2.03	1.38	20444.08	34.67	6542.0
Tunisia	2.08E+08	6.02E+08	78806						3872.51		1274.0

Turkey	3.52E+09	4.74E+09	468055	0.18	0.41	0.03	0.00	0.15	9130.03	27.96	2740.0
Turkmenistan	1.23E+08	54699232	540						6947.84		5252.0
Tuvalu	4327	111922.4	173								16459.0
Uganda	14789933	34744566	1106						675.57	17.49	5774.0
Ukraine	5.55E+09	1.14E+09	11735	2.79	1.40	0.63	0.17	1.25	2114.95	52.77	2864.0
United Arab Emirates	6.02E+08	4.58E+08	9043	2.48	1.40	0.18	0.08	1.03	40438.38		5635.0
United Kingdom	8.96E+09	1.26E+10	1071931	1.10	2.99	1.62	5.49	2.80	43734.00	27.43	1263.0
United States of America	7.81E+09	1.28E+10	909843	0.66	3.31	1.12	3.38	2.12	55836.79	12.56	5770.0
Uruguay	1.07E+08	1.08E+08	2505	0.04	0.47	0.04	0.41	0.24	15573.90	22.30	9957.0
Uzbekistan	1314430	2427002	126						2132.07	20.67	5949.0
Vanuatu	49043	99626.79	147								17378.0
Venezuela	3.52E+09	8.22E+08	5030	1.31	3.15	2.70	0.21	1.84			6995.0
Vietnam	3.99E+08	2.31E+09	317833	0.38	1.99	0.01	6.62	2.25	2111.14	89.78	10053.0
Yemen	286346	1530722	23								5388.0
Zambia	1827925	9046427	29	0.02	0.53	0.01	2.73	0.82	1307.79		7044.0
Zimbabwe	50532874	26250509	276						890.42	26.25	7415.0